

II. CLAIM AMENDMENTS

1. (Currently Amended) Sensor module comprising

- a radiation-sensitive sensor element ~~(12)~~ providing a radiation-dependent electric output signal,
 - a sensor signal processing circuit ~~(13, 41a, 44a)~~ receiving the output signal from the sensor element ~~(12)~~ and providing a radiation-dependent first electric signal,
 - a temperature-sensitive reference means comprising a reference element thermally coupled to the sensor element and one or several squaring means ~~(14, 15, 41b, 43, 44b)~~ connected to the reference element for simulating the temperature dependency of the photo-electric conversion characteristics of the sensor element and providing a temperature-dependent second electric signal, and
 - a combination means ~~(16)~~ for combining the two electric signals, characterised in that
- the sensor signal processing circuit ~~(13, 41a, 44a)~~, the temperature-sensitive reference means ~~(14, 15, 41b, 43, 44b)~~ and the signal combining means ~~(16)~~ are formed on a single chip ~~(20, 21)~~, and
- the chip ~~(20, 21)~~ and the sensor element ~~(12)~~ are accommodated in a common housing ~~(22, 62, 64)~~.

2. (Currently Amended) Sensor module according to claim 1, characterised in that the housing ~~(22, 62, 64)~~ is provided with electrically conductive or semi-conductive walls.

3. (Currently Amended) Sensor module according to claim 1, characterised in that the housing ~~(22, 62, 64)~~ has a cylindrical shape and the cylinder has a diameter of less than 10 mm.

4. (Cancelled)

5. (Currently Amended) Sensor module according to claim 1, characterised in that the sensor signal processing circuit ~~(13, 41a, 44a)~~ is provided with a first amplifier ~~(41a)~~.

6. (Currently Amended) Sensor module according to claim 1, characterised in that the reference means ~~(14, 15, 41b, 43, 44b)~~ comprises a reference element ~~(14)~~ and a second amplifier ~~(41b)~~.

7. (Cancelled)

8. (Currently Amended) Sensor module according to claim 1, characterised ~~by~~ further comprising a compensation means ~~(44a)~~ for compensating the influence of the power dissipation of electronic components on the output signal.

9. (Currently Amended) Sensor module according to claim 1, ~~characterised by~~further comprising a radiation-transmissible window ~~(64, 66)~~ provided in the housing ~~(22, 62, 63)~~, said window ~~(64, 66)~~ being electrically conductive or semi-conductive or having an electrically conductive or semi-conductive coating.

10. (Currently Amended) Sensor module according to claim 1, ~~characterised by~~further comprising an optical imaging element ~~(65, 66)~~ provided in the housing ~~(22, 62, 64)~~.

11. (Currently Amended) Sensor module according to claim 9, ~~characterised in that~~the further comprising an imaging element is ~~provided in the window of the housing.~~

12. (Currently Amended) Sensor module according to claim 10, characterised in that the imaging element ~~(65, 66)~~ comprises a lens ~~(66)~~ or a mirror ~~(65)~~.

13. (Currently Amended) Sensor module according to claim 1, ~~characterised by~~preferably further comprising digital programming means ~~(48, 51)~~ provided in the housing ~~(22, 62, 64)~~ for setting ~~the~~ operating parameters of the sensor module.

14. (Currently Amended) Sensor module according to claim 1, characterised in that the ~~combining~~combination means ~~(16)~~ is an integrator amplifier.

15. (Currently Amended) Sensor module according to claim 1, characterised in that the ~~combining~~combination means is a digital circuit ~~(51)~~ receiving the signals from the sensor means ~~(13, 41a)~~ and the reference means ~~(14, 15, 41b)~~ via A/D converters and outputting a digital, ~~preferably~~ temporally serial signal.

16. (Currently Amended) Sensor module according to claim 1, characterised in that the ~~combining~~combination means is a digital circuit ~~(51)~~ outputting digital signal as YES/NO values to be used for monitoring a temperature threshold ~~and/or~~ or for controlling one or more temperatures to one or more target values, the one or more target values being programmable.

17. (Cancelled)

18. (Previously Presented) The sensor module of claim 1 wherein the reference means comprises elements for characteristics simulation, the elements simulating characteristics of the sensor element with an exponential function or a power function.

19. (New) Sensor module according to claim 1, characterised in that the combination means is a digital circuit outputting digital signal as YES/NO values to be used for monitoring a temperature threshold and for controlling one or more temperatures to one or more target values, the one or more target values being programmable.